

Vacuum bump experiment made on 27-Dec-2000

*How?

Activation of NEG pump

Turning off Ion Pump(IP)

*Where?

HER Tsukuba straight section IP<-> arc

First arc

D6 arc

LER IP <-> BL1RP (26m upstream)

BL1RP <-> arc

Nikko straight (D10/D11)

Injection point (D7)

*Results: Contribution from upstream straight section is biggest.
The last portion of the last arc has also significant effect.
Nature of background of the above two seem different.

HER

Monitor & Control

FT Line	D01	D07
Stopper	D02	D08
Movable Mask	D03	D09
CCG Pressure	D04	D10
Gate Valve	D05	D11
NEG Activation	D06	D12
IP Current	GV Close	
Monitor	ALH	Alarm Test
Component Temp.		
Cooling Water		
Python Utilities		

IR Pressure

D1 3 2 2 1 1 4 4 3 2 2 1 1.1e-08

D2 1 1.1e-08

D3 1 1.1e-08

D4 1 1.3e-08

D5 1 1.0e-08

D6 1 1.0e-08

D7 1 1.0e-08

D8 1 1.0e-08

D9 1 1.0e-08

D10 1 1.0e-08

D11 1 1.0e-08

D12 1 1.0e-08

RGA 1 1

Life = 0.001 mA

Life = 0 Pa

PLC FA LINK OK

Alert Status

Ext Int Status

LER

FT Line	D01	D07
Stopper	D02	D08
Movable Mask	D03	D09
CCG Pressure	D04	D10
Gate Valve	D05	D11
NEG Activation	D06	D12
IP Current	GV Close	
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IR Pressure

D1 3 2 2 1 1 4 4 3 2 2 1 1.1e-08

D2 1 1.1e-08

D3 1 1.1e-08

D4 1 1.3e-08

D5 1 1.0e-08

D6 1 1.0e-08

D7 1 1.0e-08

D8 1 1.0e-08

D9 1 1.0e-08

D10 1 1.0e-08

D11 1 1.0e-08

D12 1 1.0e-08

RGA 1 1

Life = 0.002 mA

Life = 0 Pa

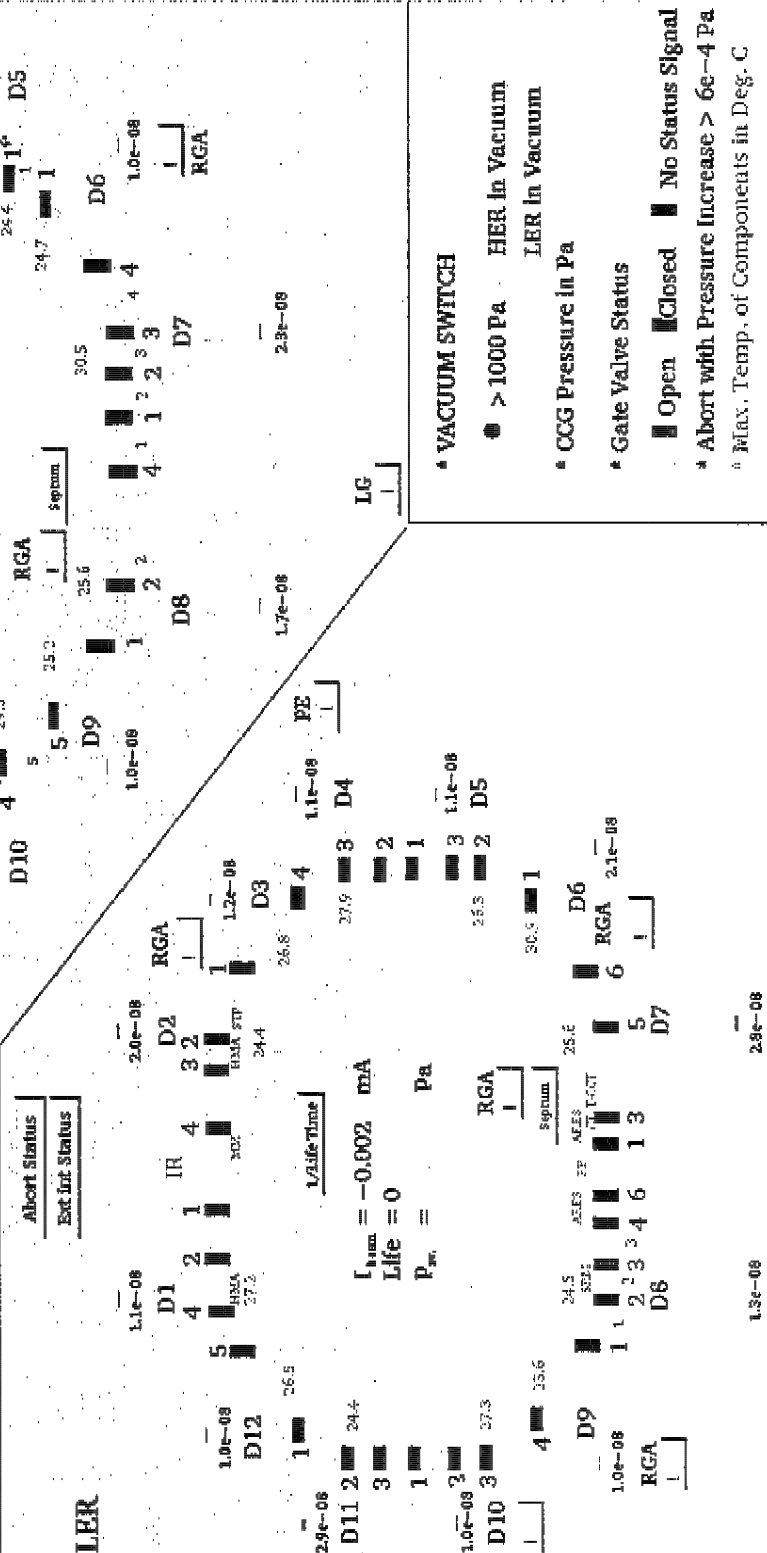
PLC FA LINK OK

Alert Status

Ext Int Status

* VACUUM SWITCH

- > 1000 Pa HER In Vacuum
- CCG Pressure in Pa LER In Vacuum
- Gate Valve Status
- Open ■ Closed ■ No Status Signal
- * Abort with Pressure Increase > 6e-4 Pa
- * Max. Temp. of Components in Deg. C



0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0

CDC lens #0 / Te-

DI straight

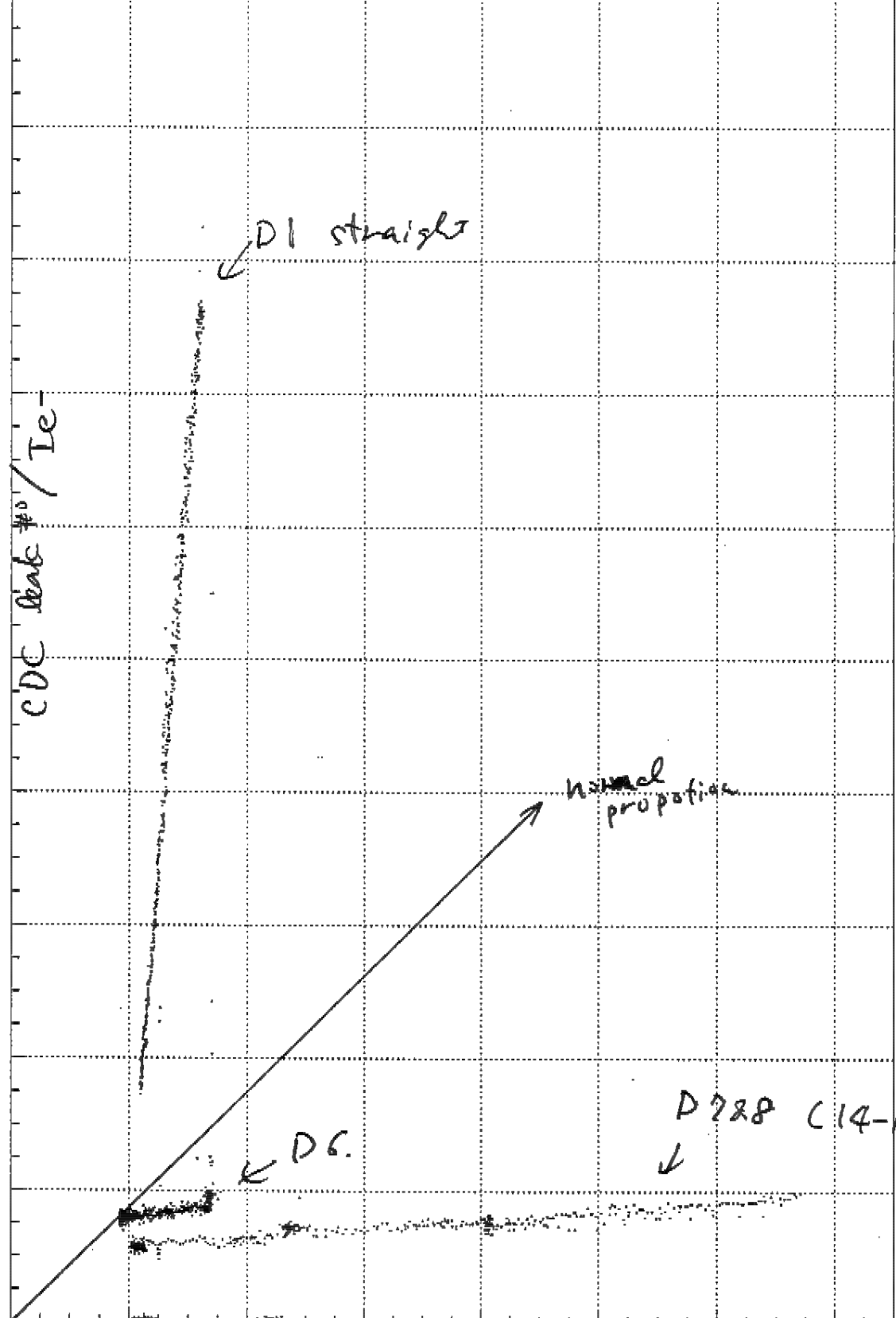
normal
propogate

DG

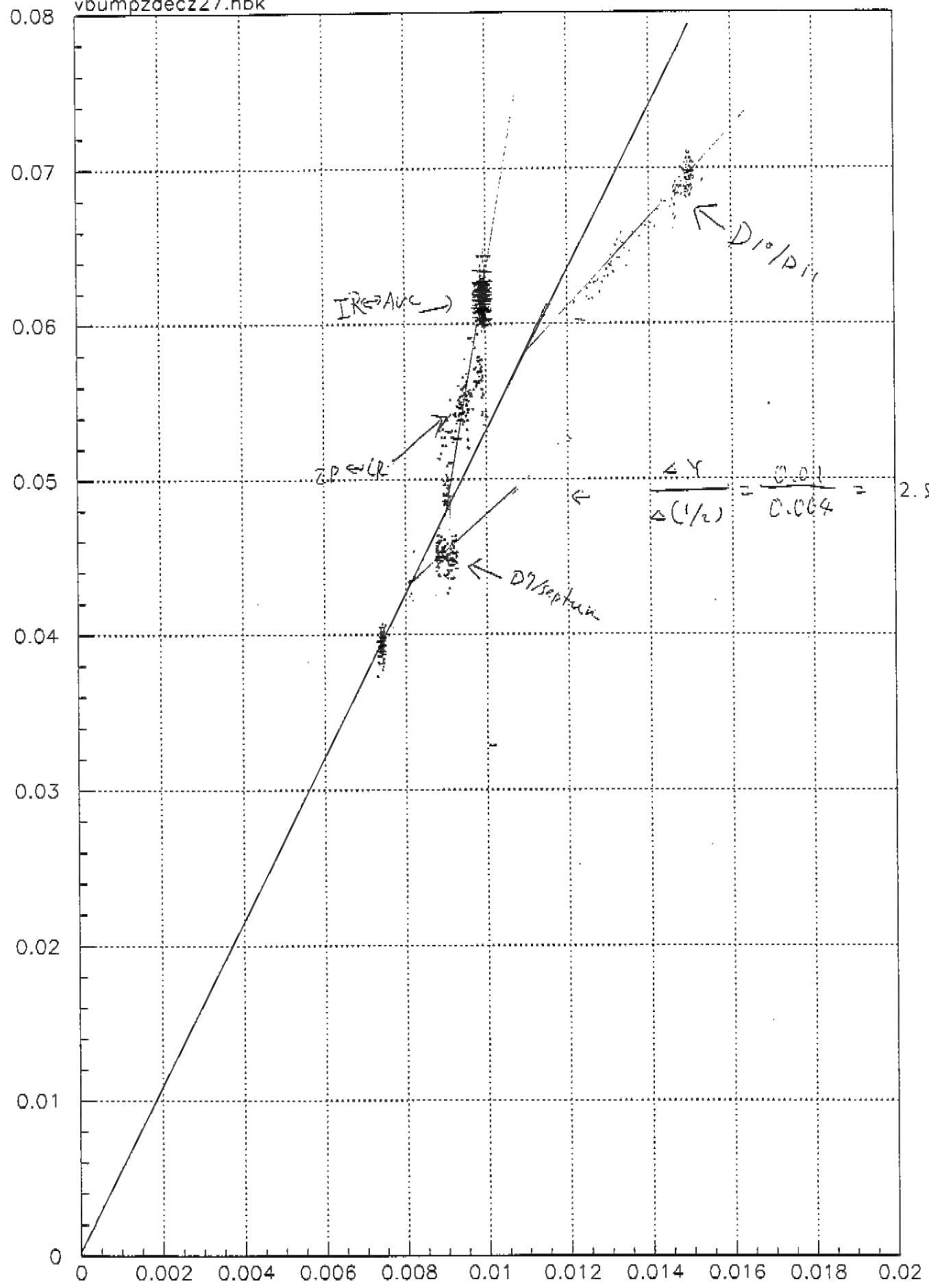
D728 (14-Dec)

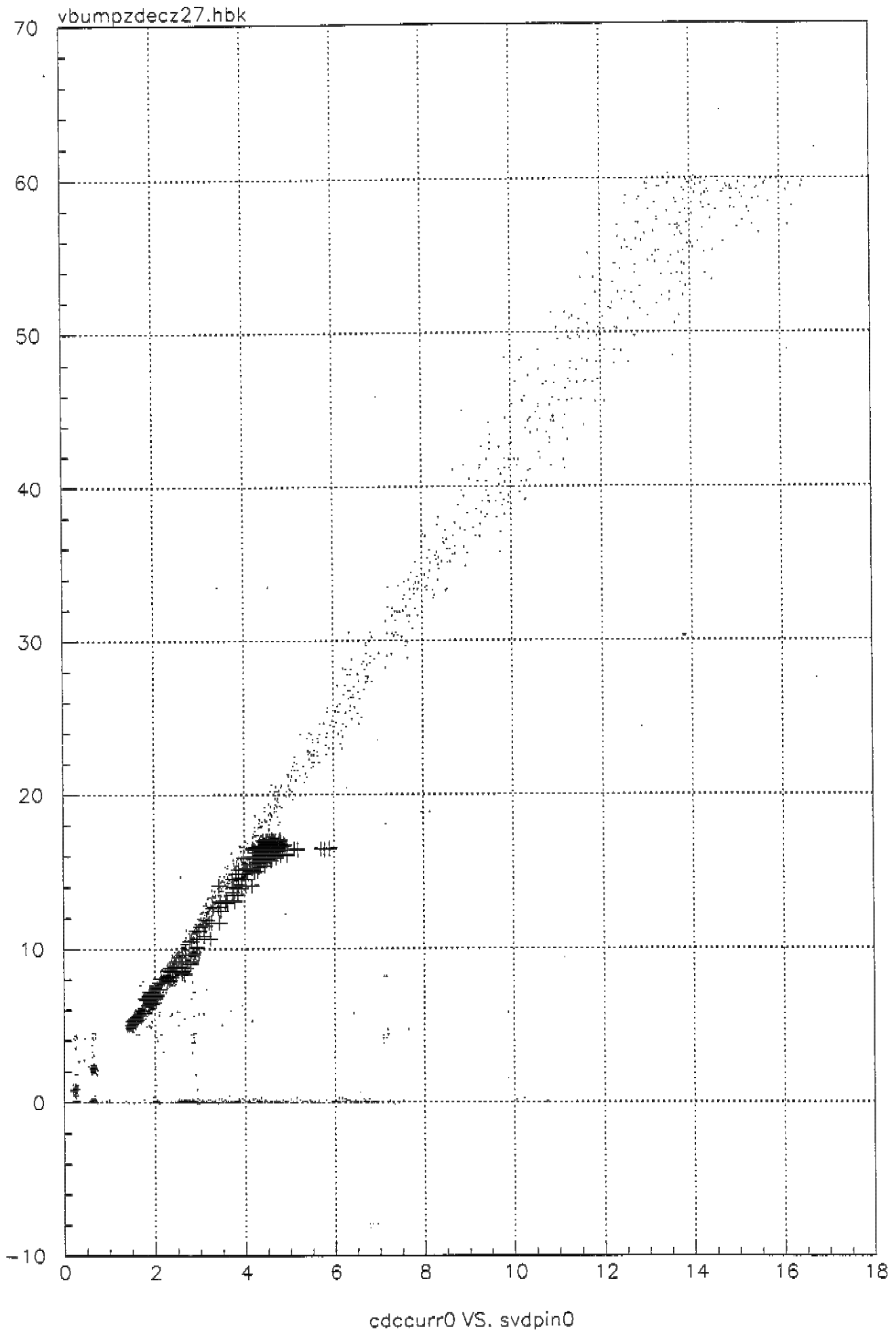
1/Te- (1/min)

0 0.002 0.004 0.006 0.008 0.01 0.012 0.014

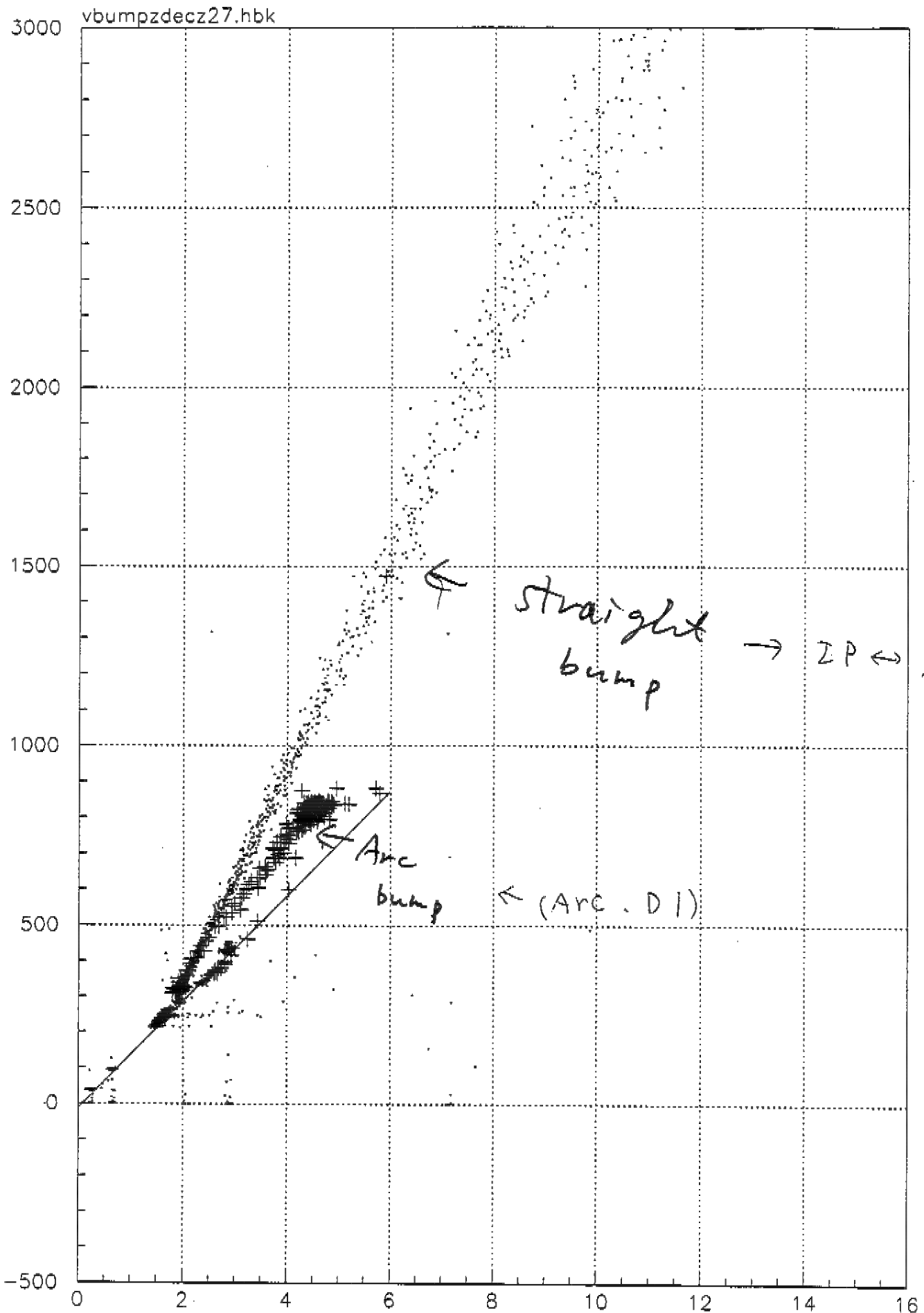


vbumpzdecz27.hbk

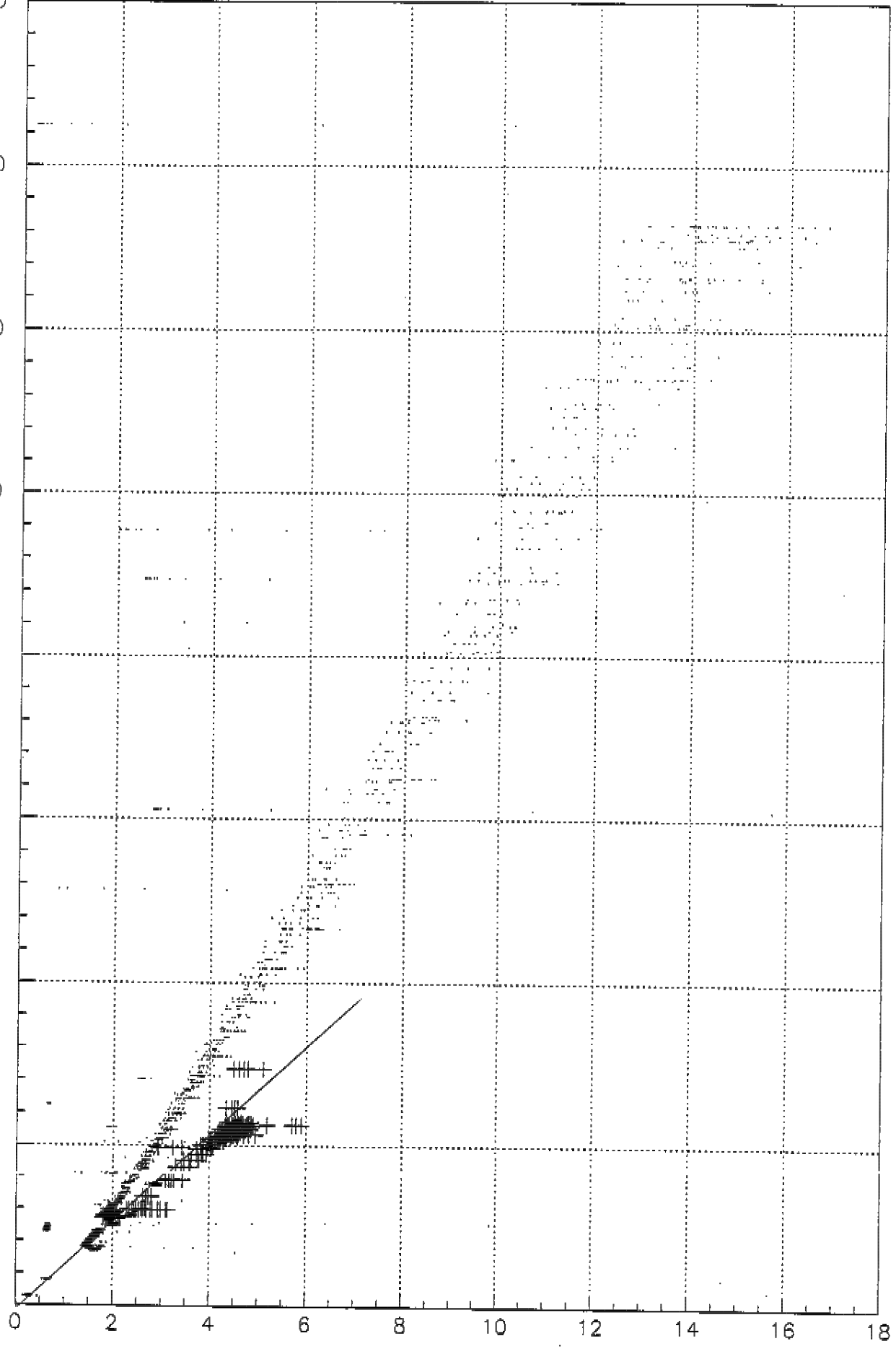




$\times 10^2$

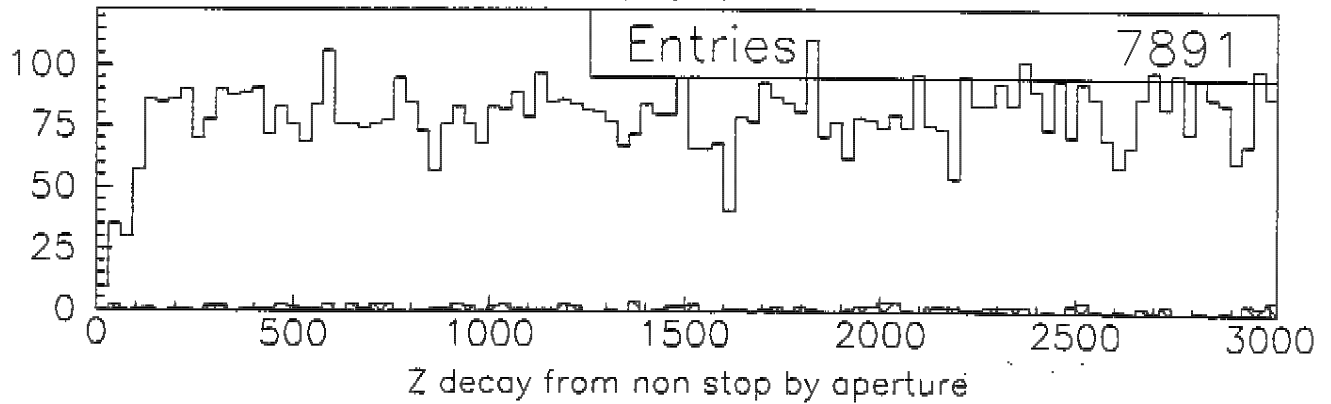
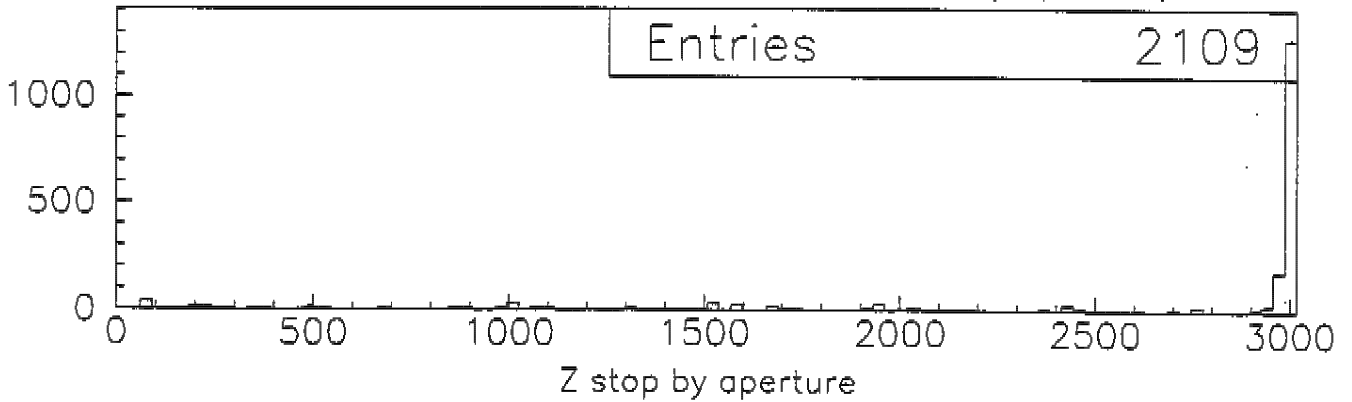
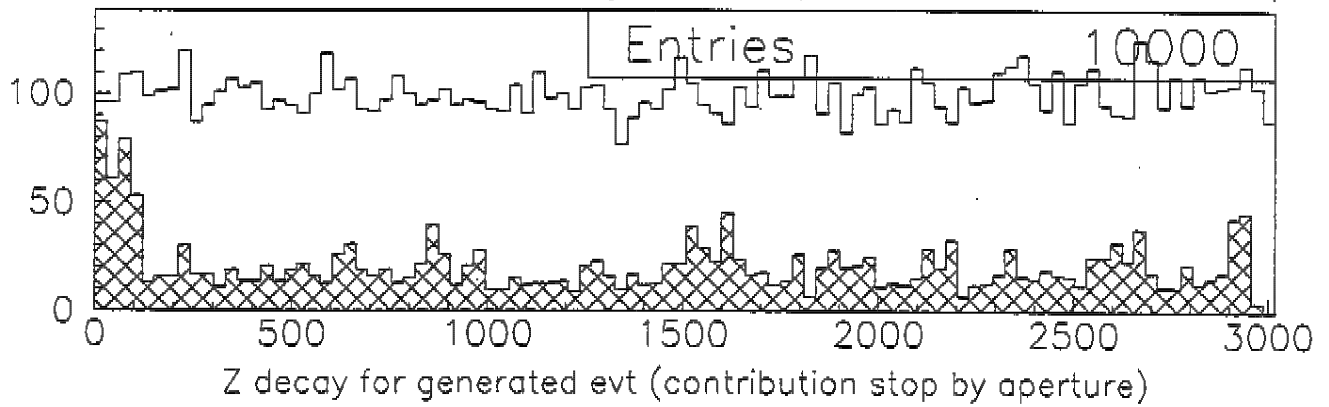
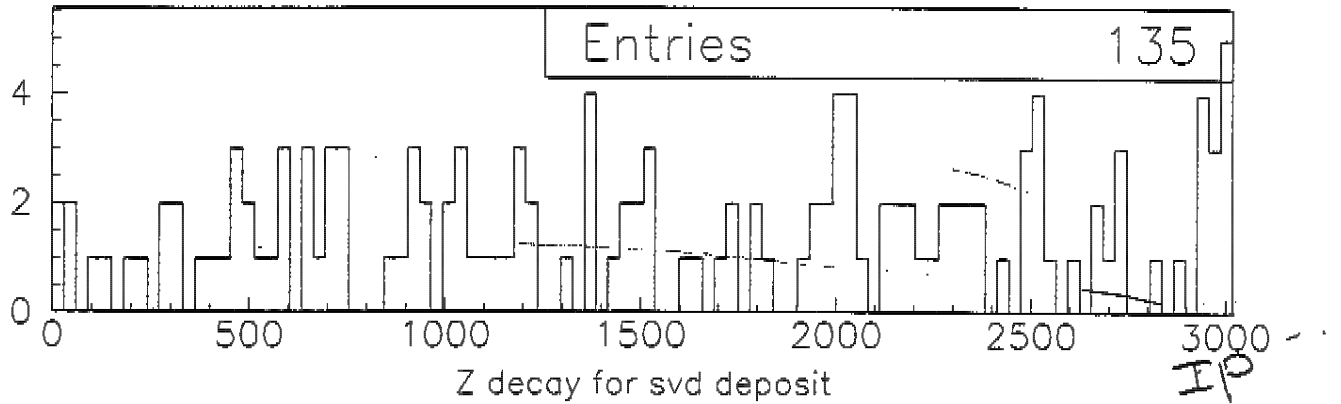


tofrate0 VS. svdpin0



efcrateb VS. svdpin0

Zdecay (turtle) HER Coul



Byproduct of the study:

*LER: beamsizes and beam life, belle background

Vertical beam size has been changed intentionally

Results: larger beam size --> longer life time

--> smaller background

Half of the LER background coming not from beam-gas but from beam tail due to Touchek effect.

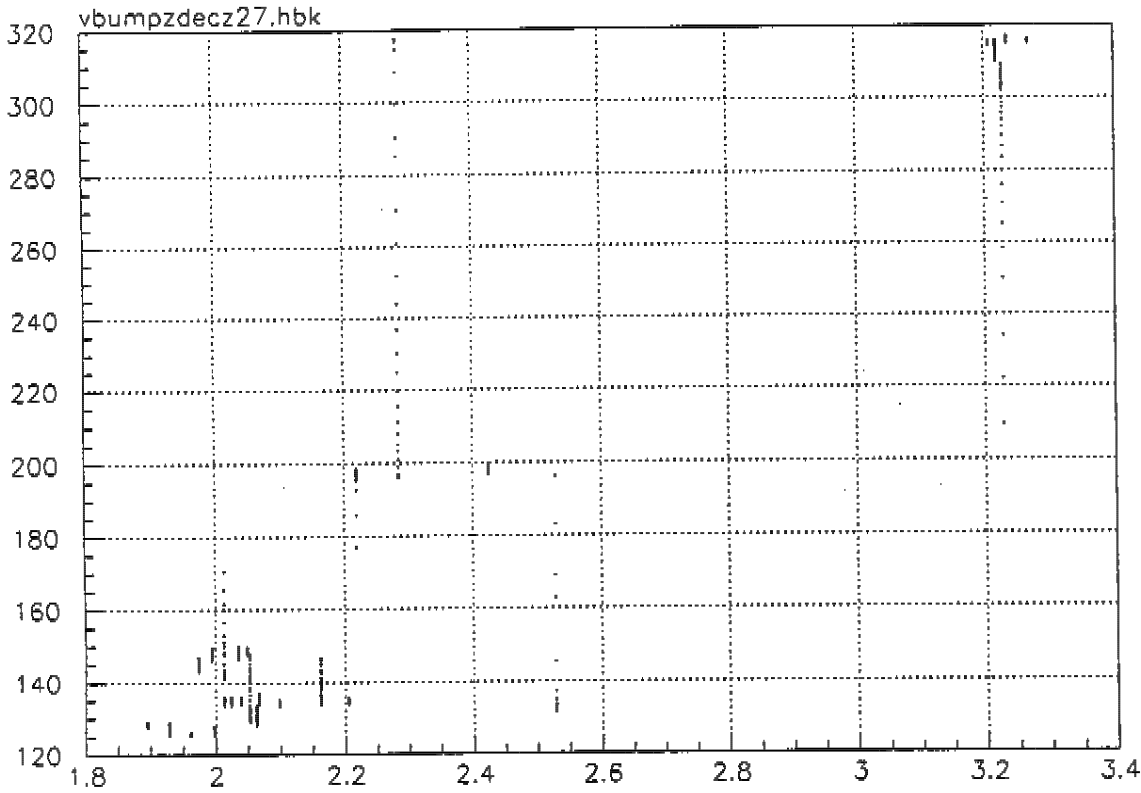
--> further fine tuning of the movable mask?

--> more effective horizontal mask?

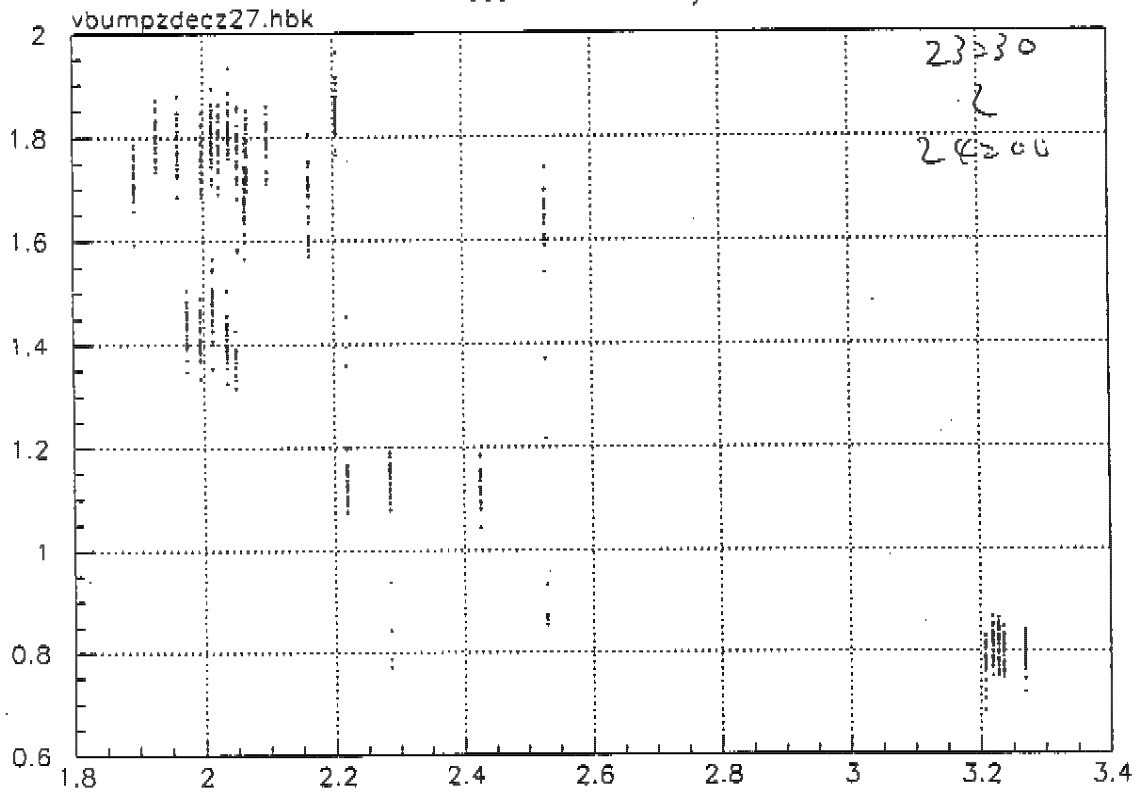
--> better optics for larger aperture?

Beam size (σ) vs life time
vs Background

z1/01/12 19.14



beamlifl VS. bmsizyl



svdpin0 VS. bmsizyl